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(54) Locally restricted open communication

(57) In a method of transmitting local information from a sending terminal (S) to receiving terminals (R1, R2), the sending terminal (S) sends a message to be distributed to receiving terminals (R1, R2), a location area (4) of the sending terminal (S) is determined, a location area (4) covering a certain area around the sending

terminal (S) is determined or receiving terminals (R1, R2) are selected depending on their location relative to the sending terminal (S) and said message is transmitted to all receiving terminals (R1, R2) inside said location area (4) or to all selected terminals. Thus p.ex. traffic information can be communicated effectively.

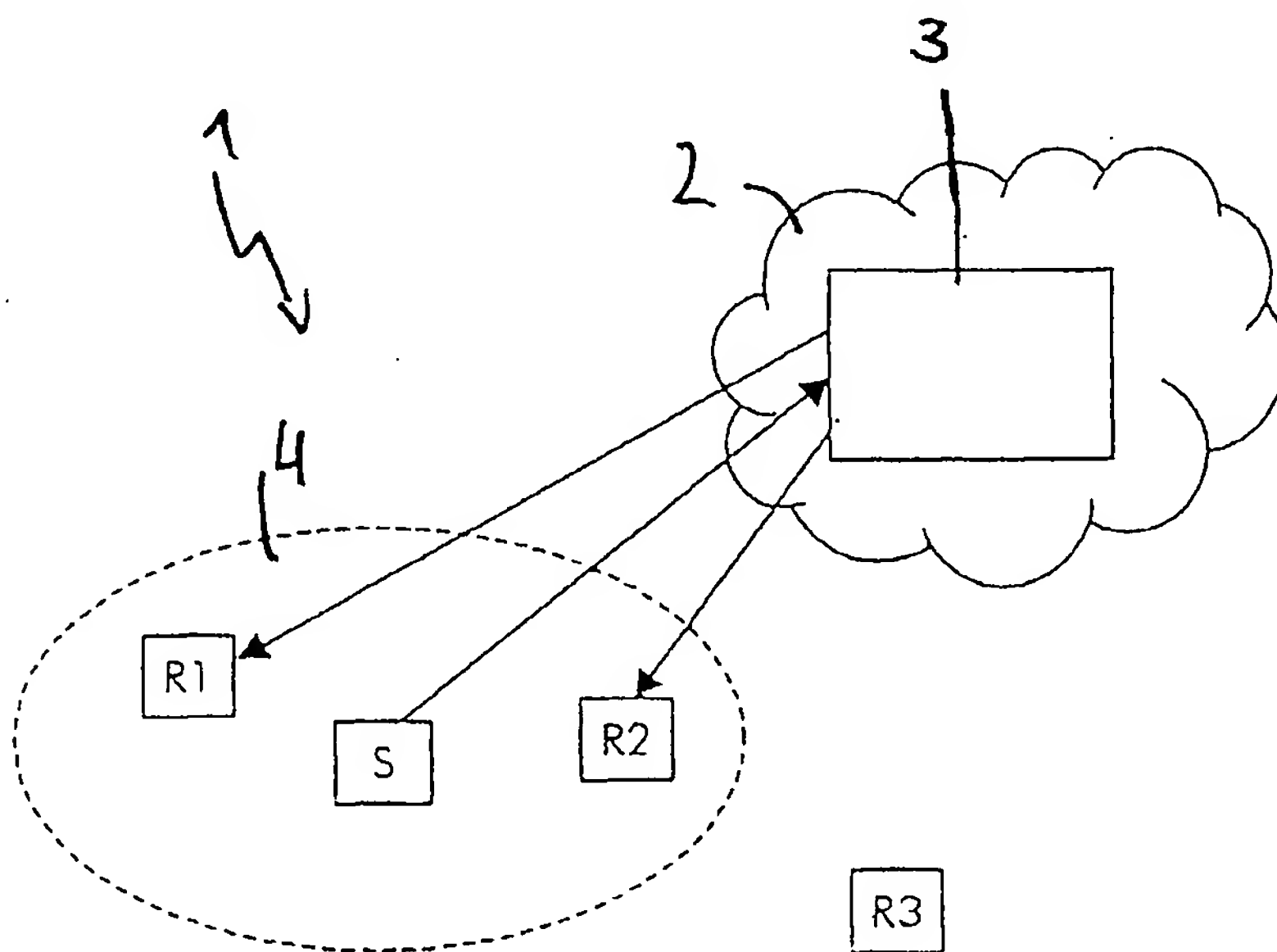


Fig. 1

EP 1 289 220 A1

Description

[0001] The present invention relates to a method of transmitting local information from a sending terminal to receiving terminals.

[0002] For some applications it can be important to communicate information to others being in the same area or region. For example, traffic information on traffic jams, accidents, road conditions in winter etc. are broadcasted via radio stations. The radio stations rely on getting information from the police or traffic participants calling the radio station on their mobile phone. Quite often it takes a considerable amount of time for such information to be broadcasted. For some participants listening to the radio that information may be too late. Furthermore, a lot of information may only be relevant to few drivers in a certain area.

[0003] It is hence the object of the invention to develop a method and implementation of the method allowing faster communication of information relevant to a certain area.

[0004] According to the invention this object is solved by a method of transmitting local information from a sending terminal to receiving terminals, where the sending terminal sends a message to be distributed to receiving terminals, a location area of the sending terminal is determined, a location area covering a certain area around the sending terminal is determined or receiving terminals are selected depending on their location relative to the sending terminal and said message is transmitted to all receiving terminals inside said location area or to all selected terminals.

[0005] This method allows a location based and distance restricted communication between drivers having a terminal. Thus, information about an upcoming problem like an accident, ice on the road, radar speed check etc. can be communicated to interested or affected drivers more quickly and efficiently without the derivation via a radio broadcast station. Road safety can hence be improved. Mobile phones can be used as terminals, thus the same terminal can be used for sending and receiving information. The communication can occur via an open communication channel restricted to a defined location. A location area can p.ex. be determined by choosing a radio cell of a mobile phone network in which the sending terminal is located. In this case the message sent from a sending terminal will be transmitted to all receiving terminals in the same cell. Alternatively, the message sent via the sending terminal can be communicated to receiving terminals which have a certain distance from the sending terminal, p.ex. 1, 2, 3 or 5 km. According to the invention, the distance can either be determined by a server or by the user of each receiving terminal. It is further possible to transmit a message from the sending terminal to a radio broadcast station for it to be broadcasted to a wider range of traffic participants via radio. Thus, drivers who will reach the location area later can also be warned. The method is not limited to

traffic information and can also be used in other applications.

[0006] In a variant of the method, speech to text conversion is performed in the sending terminal and text to speech conversion is performed in the receiving terminals. Thus, voice can be transformed into a data format which can be transmitted more easily. Furthermore, a driver can use the method without taking his hands off the steering wheel.

[0007] An active or passive status may be selected for each terminal. In the active status or chat mode the user can communicate with other users, i.e. send and receive data via the terminal. In the passive status or emergency mode the terminal is held ready for incoming messages only. This could also be called stand-by mode.

[0008] In a further development of the method, in the active status sending messages takes priority over receiving messages. Hence it is ensured that a user can always send messages and thus warn other users about an upcoming problem.

[0009] The object of the invention is further solved by a network server with means to select receiving terminals depending on the location of a sending terminal. The location server determines the location of each user, i.e. terminal, at any time. A location area with respect to a particular sending terminal can therefore be determined effectively. The sending terminal is not required to have the means to determine the location of receiving terminals and to have up-to-date information on the location of other participating terminals. The information sent to the network server can also be further processed and statistically analyzed.

[0010] In an embodiment of the invention, the network server comprises means for receiving data from a sending terminal and for sending data to a receiving terminal. Thus communication between terminals via the network server is ensured.

[0011] Furthermore, the object is solved by a mobile network with mobile sending and receiving terminals and means to establish a permanent (data) communication channel. The communication channel can be realized as GPRS or UMTS data channel. Hence, existing channels can be used for the present invention.

[0012] Advantageously, the mobile network further comprises a network server. Thus administration of the sending and receiving terminals and determination of location areas and terminals in a certain location area can be performed centrally.

[0013] In yet another embodiment the sending and receiving terminals are mobile phones. Mobile phones can be easily modified to be used in the invention and for a cost effective implementation of the above method.

[0014] Additional distinctions and advantages of the invention can be gathered from the description of an embodiment of the invention, the drawing, which shows details relevant to the invention, and from the claims. The individual characteristics can be realized each individu-

ally or collectively in any combination in an embodiment of the invention.

[0015] The invention is schematically shown in the figure, such that the essential features of the invention can be easily recognized.

[0016] Fig. 1 shows a schematic diagram of a mobile network 1. A sending terminal S sends local information via a communication channel 2 to a network server 3. The network server 3 determines a location area 4 depending on the location of the sending terminal S, i.e. an area around the sending terminal S. The server then determines the receiving terminals R1, R2 located inside the location area 4. Then the message sent by the sending terminal is transmitted to the receiving terminals R1, R2 only. The message is not transmitted to the receiving terminal R3 outside the location area 4. The terminals S, R1, R2, R3 can perform speech to text conversion of outgoing messages and text to speech conversion of incoming messages. They can be operated in active status for permanent public chat or in passive status for only receiving messages. The participation in public chat and the received messages depend on the location of a particular terminal and the distance from other terminals. As one of two terminals in the same location area moves relative the other terminal, the terminal may move into another location area and thus communicate with different terminals.

[0017] The following example shows one possible application of the locally restricted open communication system. A terminal S, R1, R2, R3 is used by a subscriber to the service of the mobile network 1. The terminal S, R1, R2, R3 is a mobile unit which can be used in a car. The terminal S, R1, R2, R3 is activated either in chat mode, i.e. an active status, allowing communication with other subscribers in the location area 4 or in emergency mode. In the active status the terminal S, R1, R2, R3 can receive and send messages, however, sending messages takes priority over receiving messages. The subscriber can send messages about the road condition, p.ex. ice on the road, to other subscribers in the same location 4 area and receive information on traffic or road conditions sent by other subscribers in the location area 4. If the terminal S, R1, R2, R3 is operated in the emergency mode, i.e. a passive status, the terminal S, R1, R2, R3 can only receive messages sent by further subscribers in the location area 4.

c. A location area (4) covering a certain area around the sending terminal (S) is determined or receiving terminals (R1, R2) are selected depending on their location relative to the sending terminal (S) and

d. Said message is transmitted to all receiving terminals (R1, R2) inside said location area (4) or to all selected terminals.

2. Method according to claim 1, **characterized in that** in the sending terminal (S) speech to text conversion is performed and in the receiving terminals (R1, R2) text to speech conversion is performed.
3. Method according to claim 1, **characterized in that** an active or passive status is selected for each terminal (S, R1, R2, R3).
4. Method according to claim 3, **characterized in that** in the active status sending messages takes priority over receiving messages.
5. Network server (3) with means to select receiving terminals depending on the location of a sending terminal (S).
6. Network server according to claim 5, **characterized in that** the network server (3) comprises means for receiving data from a sending terminal (S) and for sending data to a receiving terminal (R1, R2, R3).
7. Mobile network (1) with mobile sending and receiving terminals (S, R1, R2, R3) and means to establish a permanent (data) communication channel (2).
8. Mobile network according to claim 7, **characterized in that** the mobile network (1) further comprises a network server (3).
9. Mobile network according to claim 7, **characterized in that** the sending and receiving terminals (S, R1, R2, R3, R4) are mobile phones.

Claims

1. Method of transmitting local information from a sending terminal (S) to receiving terminals (R1, R2), where

- a. The sending terminal (S) sends a message to be distributed to receiving terminals (R1, R2)
- b. A location area (4) of the sending terminal (S) is determined

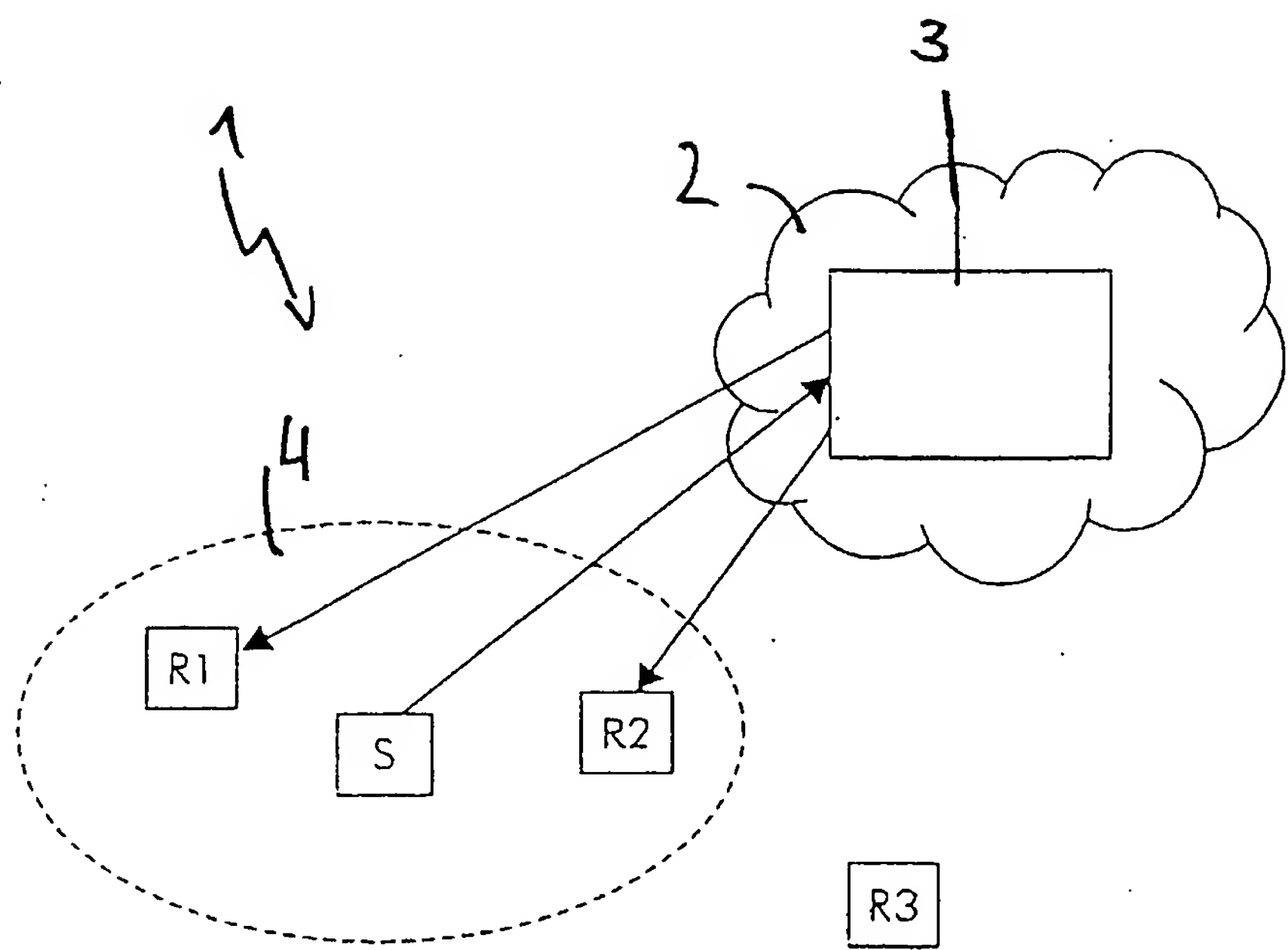


Fig. 1



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EUROPEAN SEARCH REPORT

Application Number
EP 01 44 0289

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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 5 August 2002	Examiner Kesting, V
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date O : document cited in the application L : document cited for other reasons * : member of the same patent family, corresponding document</p>			

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Application Number

EP 01 44 0289

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



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EUROPEAN SEARCH REPORT

Application Number
EP 01 44 0289

DOCUMENTS CONSIDERED TO BE RELEVANT				
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The present search report has been drawn up for all claims				
Place of search THE HAGUE		Date of completion of the search 5 August 2002		Examiner Kesting, V
CATEGORY OF CITED DOCUMENTS X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: informed disclosure T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons &: member of the same patent family, corresponding document				

EPO FORM 1503 03/92 (PC/001)



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LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 01 44 0289

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1,2,5-9

Method and network server for speech-to-text converting a message at a sending terminal, transmitting the converted message via a network server to a receiving terminal, and converting it there back into speech

2. Claims: 1,3,4

Method of prioritizing message sending over message receiving, based on a terminal's status

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 01 44 0289

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82